

No. 673,307.

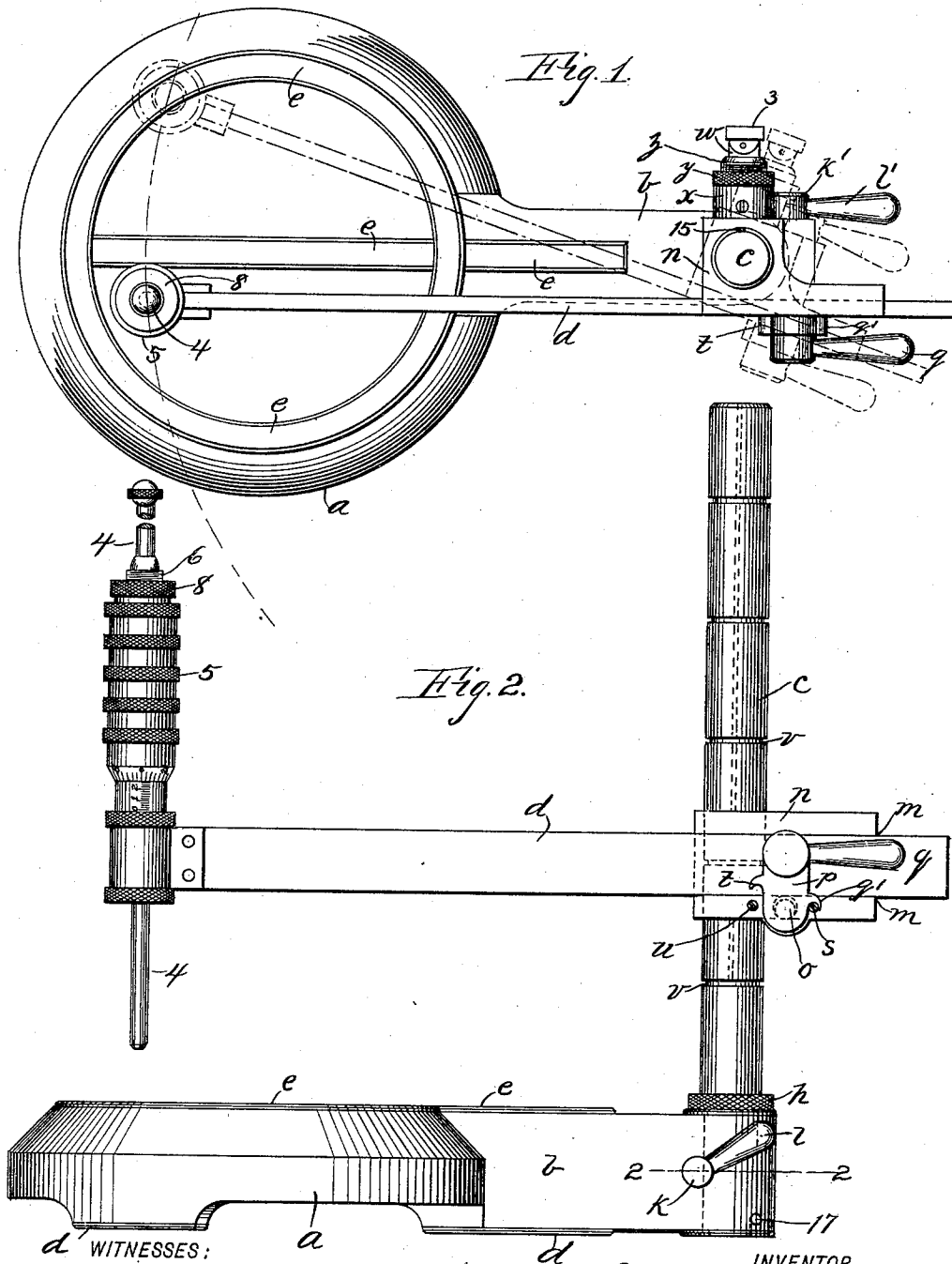
Patented Apr. 30, 1901.

J. WAHLBERG.  
MICROMETER SURFACE GAGE.

(Application filed Sept. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:  
*L. Almquist.*  
*E. Sadqvist*

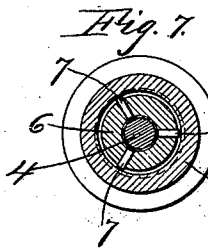
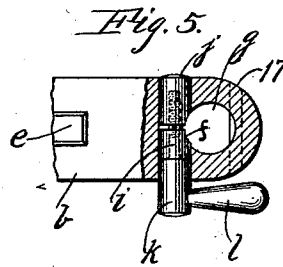
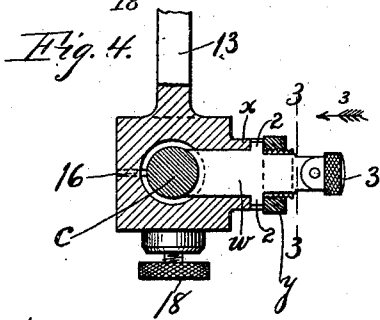
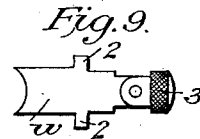
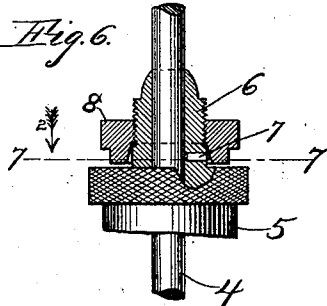
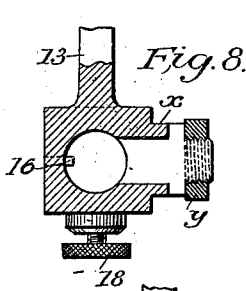
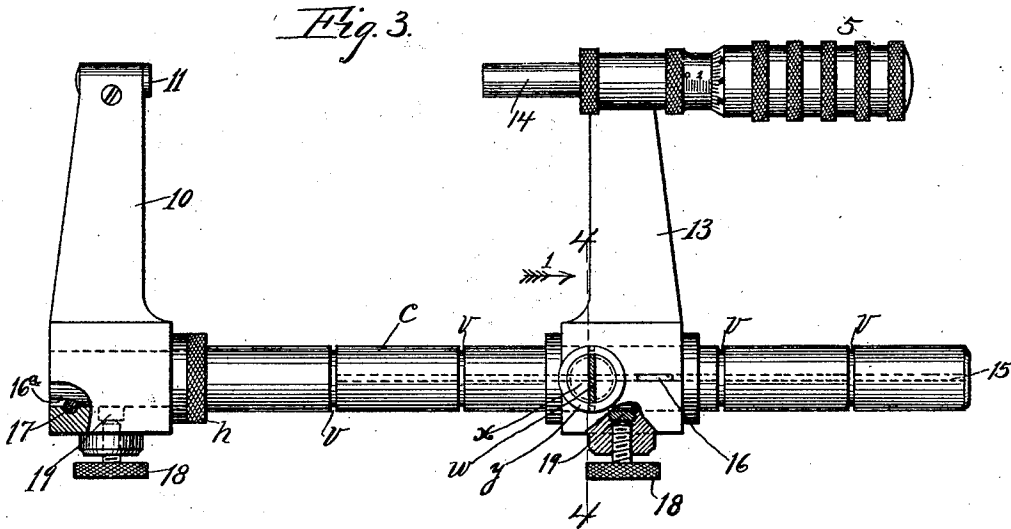
INVENTOR  
*John Wahlberg.*  
BY  
*A. P. Thayer*  
ATTORNEY

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MICROMETER SURFACE GAGE.

(Application filed Sept. 29, 1900.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:  
*L. Almqvist*  
*W. Sedgwick*

INVENTOR  
*John Wahlberg*  
 BY  
*A. P. Thayer*  
 ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN WAHLBERG, OF NEW YORK, N. Y.

## MICROMETER SURFACE-GAGE.

SPECIFICATION forming part of Letters Patent No. 673,307, dated April 30, 1901.

Application filed September 29, 1900. Serial No. 31,590. (No model.)

To all whom it may concern:

Be it known that I, JOHN WAHLBERG, a subject of the King of Sweden and Norway, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Micrometer Surface or Caliper Gages, of which the following is a specification.

My invention consists of improvements in the construction of novel features in micrometer surface or caliper gages, and adjuncts adapting them for surface or other gaging, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of my improved surface-gage. Fig. 2 is a side elevation of said gage. Fig. 3 is a side elevation of parts of the surface-gage and adjuncts, more especially adapting the instrument as an ordinary micrometer-gage or calipers adapted for a wide range of different sizes, with parts in section. Fig. 4 is a transverse section of part of Fig. 3 on line 4 4 of said figure. Fig. 5 is a detail in section of Fig. 2 on line 2 2 of said figure. Fig. 6 is a detail of the upper end of the micrometer-chuck for carrying the tracer or movable contact part of the surface-gage, partly in section and partly in side elevation. Fig. 7 is a transverse section of the devices of Fig. 6 on line 7 7 of said figure. Fig. 8 is a transverse section of part of Fig. 3, same as Fig. 4, except the key for controlling the swinging block or arm is omitted. Fig. 9 is a plan view of the key detached.

The bed-plate or stationary contact part of the surface-gage is represented at *a*. It is preferably circular in form and has a lateral branch *b*, in the outer extremity of which the post *c* for carrying the beam *d* is mounted. The bearing-surfaces *d* of the under side of the bed-plate and the supporting-surfaces *e* of the same are ground true and parallel, and the post is set exactly perpendicular thereto. The branch *b* is bored at *g* for reception of the lower end of the post, which has a collar *h* resting on the branch around the bore, and a clamp is employed for detachably securing the post which is to be removed from the bed-plate when used as part of the micrometer-gage. The clamp consists of two cylindrical jaws *i* and *j*, located in a hole bored transversely to the bore *g* and slightly cutting into

said bore, as shown in Fig. 5, said jaws nearly meeting each other at a central vertical plane of the bore *g*, and they are beveled in the parts *f*, contacting with the part of the post entering bore *g*, to present broad bearing-surfaces thereto, and they are fitted with a clamping-screw *k*, extending through jaw *i* and screwing into a screw-tapped socket in jaw *j*, said screw having a lever *l* attached to its head, which projects from the hole in which it is placed far enough for the connection of such a lever for operating the screw to open and close the jaws. Such a clamp is more effective than a set-screw, and the jaws do not mar the surface of the post, as a set-screw does when used.

The tracer or movable contact part carrying beam *d* is fitted adjustably in a groove *m* in one side of a block *n*, that is bored to fit on post *c* and shift up and down thereon and which carries a binding-cam *o* under the lower edge of the beam for gripping it fast by wedging under said lower edge. The cam has an arm *p* fitted to one end for turning it, and a handle *q* is attached to said arm. Said arm also has a stop-hook *q'*, and a stud *s* is provided on the block *n* in suitable relation to said hook to prevent overstraining the cam and abrading the metal when gripping the beam. A similar stop-hook *t* and a stud *u* are provided for limiting the movement in the other direction unnecessarily.

The block *n* is of necessity fitted to the post *c*, so that the beam may be shifted around the post as is required in the working of such instruments and for preventing the dropping of the beam while the block is free for so turning. The post *c* is grooved, as at *v*, and the block *n* has a sliding key *w* fitted in a laterally-projecting boss *x*, which key has its inner end suitably notched and otherwise adapted to be entered in a groove *v*, and a milled nut *y* is fitted on a screw-threaded extremity *z* of said boss to force the key into the groove. Lateral spurs *2* of the key projecting outwardly through slots of the screw-threaded part of the stud serve for forcing the key in by the nut, and they lodge against the end walls of the slots to prevent the key from being jammed and binding so as to obstruct the turning of the block on the post. The key also has a head *3*, projecting outward

from the nut for use in withdrawing the key when the nut has been slacked off. The post is provided with a series of these grooves *v* placed at equal standard measures of distance apart—say one inch—so that when it is desired to shift the beam up and down with the tracer or movable contact part adjusted to some predetermined relation to the work the change of its relation will be known by the scale of the grooves.

To bind the block *n* on the post when it is desired to set the beam so as not to swing on the post, a clamp is employed of like construction as the clamp above described, for setting the post in the socket *g* of the branch *b* of the bed-plate, whereof *k'* indicates the head of the clamp-screw and *l'* the lever for working it.

The tracer 4 is carried in the barrel 5 of a micrometer-gage set upright on the free end of the beam, said tracer extending through the barrel centrally and fixed adjustably lengthwise with a chuck for setting it, comprising the screw-threaded and radially-perforated extension 6 of the barrel, gripping-pins 7 in the radial perforations of said extension, and the countersunk nut 8, which by screwing down on said extension 6 presses the pins against the tracer to grip and hold it in a more satisfactory manner than a set-screw affords, a plurality of pins being used to distribute the grip around the tracer equally. With the post *c* thus readily detachable from the bed-piece and having the plurality of grooves *v* it is available for the bar of an ordinary micrometer-gage or calipers of wide range by the application to it when detached from the bed-plate of a fixed arm 10, carrying the stationary calipers contact 11, and an adjustable arm 13, carrying the movable contact 14 and the adjusting-barrel 5, as shown in Fig. 3, the said post being for such purpose provided with the longitudinal groove 15 along one side for co-acting with a feather-key 16 in the hub of an arm 13 to prevent said arm from turning on the post and said post also having the lower end flattened on one side at 16<sup>a</sup> to be engaged by a permanently-set pin 17 in the hub of arm 10 to maintain this arm in the same plane as arm 13. A like pin 17 in the branch of the bed-piece prevents the post from turning when the beam swings. These arms 10 and 13 may also have binding-screws 18 as further means of setting them positively after being assembled, the key and groove and the pin and flat part 16<sup>a</sup> being mainly to facilitate the coincidence of the arms in the assembling. Bearing-pieces 19 are inserted in the hubs of the arms suitably to protect the surface of the post *c* from injury by the points of the set-screw. The hub of the adjustable arm 13 is provided with a sliding key *w*, same as above described in con-

nection with the beam-carrying block *n* for engagement with the grooves *v* of the post to facilitate setting the gage or caliper contact parts at predetermined distances apart.

What I claim as my invention is—

1. In a surface or other like gage, the combination with the stationary contact part, post or bar, beam or arm, connected with said post or bar; and tracer or movable contact part carried on said beam or arm, of the stop-grooves arranged at predetermined distances apart in the post or bar, sliding key in the hub of the beam or arm for engaging said grooves, slotted screw-threaded extension of the hub receiving the key and nut, said nut and spurs of the key controlling the action of the key, said hub provided with a clamp to prevent the beam or arm from turning on the post or bar, and the key having a head for use in withdrawing it.

2. In a surface or other like gage, the combination with the stationary contact part, post or bar detachably connected with said part, beam or arm connected with said post or bar, and tracer or movable contact part carried on said beam or arm, said post or bar having the feather-key groove and the flattened extremity connecting with the stationary part, beam or arm having the feather-key in its hub, said stationary part having the fixed pin for engaging said flat part of the post or bar to facilitate assembling the parts and the said stationary part and beam or arm having fixedly-setting clamps.

3. The combination with the post or bar and beam or arm connected by a cylindrical part of one fitted in a round hole of the other, of the binding-clamp comprising two jaws fitted in a transverse hole cutting into the hole receiving said cylindrical part, said jaws conformed to the surface of the cylindrical part of the post or bar, in the parts intended to have contact therewith and a screw connecting said jaws for opening and closing them, said jaws and screw adapted for wedging the post laterally in the hole and binding it fast therein.

4. In a surface or other like gage, the combination with the stationary contact part, post or bar, beam or arm, connected with said post or bar, and tracer or movable contact part carried on said beam or arm, of the stop-grooves arranged at predetermined distances apart in the post or bar, sliding key in the hub of the beam or arm for engaging said grooves, slotted screw-threaded extension of the hub receiving the key and nut, said nut and spurs of the key controlling the action of the key.

Signed at New York city, New York, this 20th day of September, 1900.

JOHN WAHLBERG.

Witnesses:

C. SEDGWICK,  
ERNEST ROCH.